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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,529	06/23/2003	Joseph Harold Steinmetz	35022.001C1	8158
34395	7590	01/31/2005	EXAMINER	
OLYMPIC PATENT WORKS PLLC P.O. BOX 4277 SEATTLE, WA 98104			HUYNH, KIM NGOC	
			ART UNIT	PAPER NUMBER
			2182	

DATE MAILED: 01/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Appli ation No. 10/602,529	Applicant(s) STEINMETZ ET AL.	
	Examiner Kim Huynh	Art Unit 2182	

-- Th MAILING DATE of this communication appears on the cov r she t with the correspond nce address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14 and 28-30 is/are allowed.
- 6) ☒ Claim(s) 15-27 and 31-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 9-14 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by over Hoese et al. (US 5,941,972).

Claim 9, Hoese discloses (Figs. 2-5) a storage shelf router employed within a storage shelf 62 (rack mount, col. 5, ll. 50-53) containing a plurality of storage devices 66-72, two communication media ports (connecting to 32 and 34), disk drive links and link port components (disk drive interface/controller) for transmitting data/commands to the storage devices, at least one processor (80-86, see Fig. 4-5) and routing logic for routing commands received from the communications-medium ports to the link port component.

Claim 10, Hoese disclose the two communication medium ports having FIFO buffer 90 and 96 for storing commands and data accessed by the routing logic.

Claim 11, Hoese disclose the routing logic access initial portion of a command/data from the FIFO 90 and 96 buffer while the medium ports is writing a later

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portion of the command into the FIFO (col. 5, ll. 10-24, FIFO queuing commands and data).

Claims 12-13, Hoese discloses the routing logic routes commands from the FIFO buffer (90 and 96) to a shared memory 84 which commands can be accessed by the processor (86, 92, 98) and directs data in the FIFO to a virtual queue within a global shared memory switch 65, from which data can be accessed by one or more data storage device link port components (col. 4, ll. 17-20) .

Claim 14, Hoese discloses the storage router having a unique ID and does not shared with any other devices (higher or lower that the other router, unique ID (col. 8, ll. 3-13) and therefore each router would be link to the other (higher or lower ID number).

Claim 30, Hoese discloses a routing logic within a local shelf storage router included within a storage shelf 60 (storage is shelf/rack mount, col. 5, ll. 50-53) includes first and second ports connecting to a first and second medium (FC and SCSI), a command an error processing component (col. 5, l. 63 to col. 6, l. 11, serial port debugger) and data storage link port layer (OSI layer 2 data link layer via the FC and SCI interface using FC and SCSI protocol, col. 5, l. 63 to col. 6, l. 11) . The routing logic having destination logic determines a message received from one of the ports and a routing logic for forwarding the message to the appropriate destination based on the destination address of the command (col. 6, ll. 12-16), and routes the message received from one of the port designates for the local storage shelf router to the command and error processing component or data storage link port layer of the router.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims ~~1-3~~¹⁻⁶ and ~~7-8~~^{celt} are rejected under 35 U.S.C. 103(a) as being obvious over Hoese (US 5,941,972) in view of Walsh et al. (US 2002/0099972) .

Claim 1, Hoese discloses (Figs. 2-5) a storage shelf router 56 employed within a storage shelf 62 (rack mount, col. 5, ll. 50-53) containing a plurality of storage devices 66-72, two communication media ports (connecting to 32 and 34), disk drive links and link port components (disk drive interface/controller) for transmitting data/commands to the storage devices, at least one processor (80-86, see Fig. 4-5) and routing logic for routing commands received from the communications-medium ports to the link port component.

Hoese disclose that plurality of shelf routers and are configured in a FC_AL loop unique ID (col. 8, ll. 3-13). Hoese does not disclose plurality of path controller cards connected to each routers for controlling the path of the data/command following a failure of a disk drive link or link port. Walsh discloses a redundant control plane architecture containing a number of routers integrated circuits 102a-b and a number of path controlling cards 104 a-b in order to permit failover in the event of a failure of any single component or bus within the redundant control plane so the control plane remains functional (see background and brief summary and par. 26). It would have

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been obvious to one having ordinary skill in the art to utilize the teaching of redundant router integrated circuits and path controller cards card of Walsh in order to provide a reliable control plane in case of failure of any single component of the control plane as taught by Walsh.

Claims 2-3, Hoese discloses the first and last shelves 38 and 42 are connected via first and second communications medium and medium ports (see Fig. 2).

Claims 4-6, Hoese discloses the storage router having a unique ID not shared with any other devices (higher or lower that the other router, unique ID (col. 8, ll. 3-13) and therefore each router would be link to the other (higher or lower ID number).

5. Claims 7-8 and 28-²⁹~~30~~ are rejected under 35 U.S.C. 103(a) as being obvious over Hoese in view of Walsh or Hoese as cited above and further in view of Bissessur et al. (US 6,820,140).

Hoese discloses the communication medium is a FC-AL and the storage device as being SCSI storage device. Hoese does not specify the data storage device as being either ATA or SATA. However, Bissessur discloses a storage device architecture between a Fibre Channel communication medium and plurality of STAT storage devices (see Fig. 1 and col. 1, ll. 13-20). Bissessur further discloses that the implementation of the storage devices using either SCSI, SATA or ATA are interchangeable based on the computing environment. Therefore, it would have been obvious to one having ordinary skill in the art to implement either SATA or ATA storage devices in place of the SCSI storage device of Hoese in order to allow greater flexibility of the storage system

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depending on the computing environment since Hoese discloses that numerous alternate communications medium and storage device can be used (col. 3, ll. 3-7).

Allowable Subject Matter

6. Claims 15-27 and 31-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

Claims 15 and 31 recites, inter alia, a storage shelf or plurality of storage shelf as recited in claims 14 and 31 wherein the router having routing table list, a first and second communications medium address and additional information related to data storage address supported by the data storage device.

The references of record do not teach or suggest the aforementioned limitation, nor would it be obvious to modify those references to include such limitation.

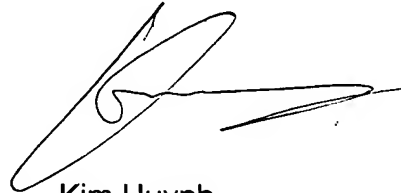
Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kim Huynh whose telephone number is (571) 272-4147.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Kim Huynh', with a stylized flourish extending to the right.

Kim Huynh
Primary Examiner
Art Unit 2182

KH
1/19/05